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TECHNICAL NOTES

LAKE STATES FOREST EXPERIMENT STATION
UNIVERSITY FARM ST. PAUL, MINNESOTA

Effect of Liquid Fertilizers on Nursery Stock

The present policy in fertilization of nurseries in the Lake States calls for application of compost or peat with commercial fertilizers previous to seeding, and in amounts adequate to take care of nutrient needs of the seedlings for several years. Occasionally the initial treatment is not adequate and the nurseryman applies liquid commercial fertilizers through the overhead sprinkling system or with a special sprayer.

An experiment installed at Hugo Sauer Nursery, Rhinelander, Wisconsin, indicated that liquid fertilizers improve not only color, vigor, and needle length, but also field survival of the stock.

The nursery test consisted of replicated plots of 2-0 red pine growing at a density of 80 seedlings per square foot, which were treated with liquid fertilizers on July 14 of the second growing season and field planted on October 18, 1937. Field tests consisted of four replications of 200 trees in each treatment, except the untreated plots which had eight replications.

The 15-30-15 nitrophoska was applied at the rate of 10 quarts of solution per 50 square feet of bed. The liquid humate consisted of nitrophoska added to a barrel one-third full of hardwood-hemlock duff and filled with water. The solution was stirred and applied at the rate of 10 quarts of solution per 50 square feet of bed. Results are given below:

Nursery treatment	Classification of nursery stock 1/			Green weight of average 2-0 seedling	Field survival	
	Plantable	Good	Excellent		First year	Second year
	Percent	Percent	Percent	Grams		
None	64	14	4	1.55	71.6	54.7
200 pounds nitrophoska	76	16	10	1.79	72.8	62.2
400 pounds nitrophoska	94	48	24	2.73	80.4	58.9
800 pounds nitrophoska	94	54	36	3.14	72.4	57.7
200 pounds liquid humate	68	6	6	1.77	70.9	57.1
400 pounds liquid humate	86	30	18	2.45	75.6	65.1
800 pounds liquid humate	92	40	22	2.37	77.7	62.3

1/ In classifying nursery stock, trees 4/64 inch caliper and over are considered plantable; those 5/64 inch and over are good; those 6/64 inch and over are excellent. All stock had fairly good balance.

The table shows a higher percent of plantable trees for the fertilized trees and small but consistently higher increase in field survival. Considering both nursery production and field survival, it appears that a treatment of around 400 pounds of balanced liquid fertilizer per acre is the most effective treatment in this nursery.

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